Reviews

edited by Philip Barker

500 Computing Tips for Teachers and Lecturers **by Phil Race and Steve McDowell, London: Kogan Page, 1996. ISBN: 0–7494–1931–8. 135 pages, paperback. £15.99.**

This is the latest in a series of practical books published by Kogan Page in the field of education by Professor Phil Race in collaboration with various others. Phil Race, Emeritus Professor of Educational Development at the University of Glamorgan, has had a varied and inspirational career in higher education, and at present is Programme Director for the University of Durham Certificate in Teaching in Higher Education. Steve McDowell lectures in IT at Gateshead College and the Open University.

The scope of the book invites admiration for the bravery of the authors. To offer advice over a vista which ranges from choosing a computer to using IT in different disciplines is not a task for the faint-hearted or the inexperienced. With academics bringing specialist knowledge and prejudices to a reading, one would imagine that such a book would fail to satisfy all but the uninitiated. It is a tribute to the breadth of knowledge of the authors that this is not the case, though those who are already using computers in their teaching may be difficult to please.

The book has four chapters with a total of forty-seven short sections, each about two pages long, together with a short bibliography and a glossary. This is a work to be dipped into rather than read sequentially. Approached in the right spirit, it contains gems of useful advice. To anyone who has been using computers for some time, much of the advice will be fairly obvious, but to the teacher beginning to think about ways in which the computer can enliven teaching and learning, the tips will prove useful. For example, there are thought-provoking sections on health and safety, and I learned that laser printers produce toxic ozone, and that monitors are implicated in facial dermatitis!

The sections on software follow a pattern of tips for beginners, then a separate section of tips for more experienced users. These do not offer instructions on how to complete a task but rather general encouragement to explore possibilities. Since Phil Race is a firm believer in learning by doing, words like 'explore', 'try out' and 'experiment' are common. As someone who tends not to explore functions unless I have a task which needs them, I am not completely convinced by this approach, and there is sometimes a tendency to gloss over material so that the tip offered is not very useful. For example, in 'Where to go next with spreadsheets', where my experience is limited, the advice is 'Learn to use absolute cell references' – if you do not know what they are, the detail in the tip will enlighten you. The book would have been vastly improved (though, to be fair, of much greater length) by the inclusion of more examples. Where they occur, what could have been obscure becomes clear; where they are absent, the novice may be baffled.

I did not find a bad piece of advice, but I came to the conclusion that the authors had spread themselves too thinly. Much of the book covers topics of interest to all computer users, or at least beginners in the field. Where my interest lies – and I would suspect, given the title, the

interest of most readers – is in the use of IT in teaching and learning, yet only about 30 of the 130 pages of main text are devoted to this. Given the experience of the authors, this is a pity. The advice in this part of the book is excellent, but again suffers from the lack of space devoted to it. To illustrate possibilities, the authors choose to give tips in science teaching and music. Here, the problems of the approach are magnified, and the authors are inclined to make statements which are only partly true, such as 'Music scanning software can read sheet music', or to minimize the difficulties of a task with statements such as 'Consider setting up virtual experiments'.

The style of the book is informal and friendly, and I would certainly recommend it to any teacher who has become aware of the possibilities of the computer in teaching and wants to know where to start. To the more experienced, only a limited amount of the material will be welcome.

Robin Shaw, University of Glasgow

***Research into Assessment and Evaluation in Colleges and Universities* by Kate Ashcroft and David Palacio, London: Kogan Page, 1996. ISBN: 0–7494–1769–2. 156 pages, paperback. £14.99.**

This book does exactly what its title indicates: it discusses assessment and evaluation, and gives leads into how to pursue research into the area. The research methods suggested are clear, and should be able to be incorporated by all who teach. Indeed, as a result of reviewing this book, I have been inspired to carry out a small project evaluation.

Chapter 1 deals with types of research and how to begin. The standard qualitative and quantitative research principles are explained, and the chapter ends with various data-collection techniques. Chapter 2 treats assessment and its purpose, while Chapter 3 looks at ways of judging reliability and validity, and systems for monitoring the quality of assessment within and between institutions. The role of external bodies like HEQC and HEFC, and their function in quality assurance in teaching, is presented. Chapter 4, where there is support for the introduction of GNVQs in parallel with GCSEs and A-levels, with present research augmenting the trend towards formative assessment (traditionalists may disagree with this view). Chapter 5 is about efficiency and effectiveness as they apply to assessment; new ways of assessing students are suggested, and the use of a multiple-strategy approach to assessment is outlined. Topics dealt with in this chapter include time issues, people issues, effectiveness and efficiency, opportunity costs in managing assessment, teacher performance and recording student progress. Chapter 6 treats evaluation and reflective practice; objective, outcome and transaction-led evaluation models are presented, and the purpose of evaluation, the monitoring process and models of quality with respect to evaluation are discussed. Chapter 7 deals with who and how to evaluate; interviewing and other schemes are presented, including the familiar evaluation instruments: questionnaires, interviews, open and closed question types, document analysis (student diaries and learning logs) and observation. The final chapter gives publishing guidance, and there is useful advice on choosing a publisher, negotiating a contract, and writing for a journal. Each chapter offers an extensive reading list.

Altogether, this book is a very useful guide for anyone involved wishing to research into assessment.

Harish Ravat, De Montfort University

***Lifelong Learning* by Norman Longworth and Keith Davies, London: Kogan Page, 1996. ISBN: 0–7494–1972–5. 179 pages, paperback. £18.99.**

This pivotal book on lifelong learning is subtitled 'New vision, new implications, new roles for people, organizations, nations and communities in the 21st century'. It defines lifelong learning as 'the development of human potential through a continuously supportive process which stimulates and empowers individuals to acquire all the knowledge, values, skills and understanding they will require throughout their lifetimes and to apply them with confidence, creativity and enjoyment to all roles, circumstances and environments'. Lifelong learning is simultaneously a practical concept, equating vocational education and training with tangible outcomes such as wealth and prosperity, and a spiritual concept with humanistic overtones. Lifelong learning is portrayed as the pragmatic alternative to complacency and fundamentalism which allows human beings to 'take control over their own destiny, combining the skills of learning with the power of knowledge and the joy of being

human and alive' and thus to avoid 'descent into a new dark age of the human spirit'.

Through its introduction and nine chapters, the book sets out to make us question the rationale and fabric of traditional education and training approaches, and to establish lifelong learning way beyond adult education or continuing professional development. The chapter headings will either make you smile or grimace, and actually do little to clarify their contents with their component verbiage apparently selected more for rhyme than explicitness, but their content is worthwhile.

Chapter 1 (Returning to Learning: The Dawn of Understanding) outlines the driving forces for the new learning initiatives at a global level. Chapter 2 (Determining Learning: What in the World is Happening?) identifies eight paradigms which herald the lifelong learning age: influence of science and technology; restructuring of industry; global demographics; influence of television and other media; changes in the nature of work; focus on the individual; environmental imperatives; new global power structures. Achievement of lifelong learning is facilitated by four extant trends: increased use of education technology tools and techniques; greater use of national and international networks; development of co-operative and two-way partnerships; and development of learning organizations, and individual empowerment. Chapter 3 (Learning Learning? Schools – Where Lifelong Learning Begins) outlines the desirable characteristics of a lifelong-learning school, and explores its potential interactions with the external environment. Chapter 4 (Learning for Earning: Learning for Survival) describes how industry and business is adapting, and must adapt, by developing a learning approach to its essential operations. Chapter 5 (Turning to Learning: The Growth of Learning Organizations) outlines ten characteristics of a learning organization, and includes a case study of the Rover Group which since 1986 has taken serious steps to ensure its own future. Chapter 6 (Yearning for Learning: New Visions for Old, New Teachers for Old) explores some of the issues and challenges lifelong learning poses for teacher education. Chapter 7 (Discerning Learning: Higher Education and the Incoming Tide) lists ten challenges or opportunities for higher education. Again it is the relationship of the university with the community at large which is the major focus of the chapter, and the relevance of the academic content and the role of information technologies are key issues. Chapter 8 (Burning for Learning: Lifelong Learning and the Quality of Life) explores the development of a global learning society. Chapter 9 (Valediction: Learning Challenges for a Learning Age) challenges the reader to participate in the implementation of some of the ideas outlined in the book, and lists some fifteen personal action points.

This topical, highly readable and thought-provoking book is aimed at all those with an interest and involvement in the development of opportunities for personal growth, either in a traditional academic community or in a work-based context, whether at a policy level or at a more pragmatic level. If lifelong learning is the intellectual infrastructure for the new millennium, traditional physical and administrative infrastructures need to be adapted to make sure that it happens. The education and training paradigm for the new millennium has to be 'more, better and wider', resulting in a more holistic and visionary view of education as a lifelong process. This book offers some insight into the evolutionary and revolutionary ways this can be achieved by encouraging the development of flexible and adaptable educational systems that facilitate the development of flexible and adaptable individuals who know how to think rather than what to think, and who are thus better able to respond to future demands and likely working patterns. As the book concludes: 'Lifelong learning is not just desirable, it is a survival issue for us all'.

Eleri Jones, University of Wales Institute, Cardiff

Hyperwave – The Next Generation Web Solution **by Herman Maurer, Reading MA: Addison-Wesley, 1996. ISBN: 0–201–40346–3. 635 pages, paperback (CD-ROM included).**

As World Wide Web publishers strive to outdo each other in offering more attractive, more useful Web sites, they are often frustrated by the limitations of the HyperText Mark-up Language (HTML) that Web pages are written in. The result is a proliferation of incremental solutions in the form of HTML extensions and browser plug-ins. A team of researchers at Graz University of Technology in Austria has been working for several years to develop a better system for transmitting multimedia information over the Internet. Their system consists of server

and client software and a protocol, Hyper-G, which allows a much richer communication between client and server. The Hyper-G system is now marketed commercially as Hyperwave, but everywhere in the book, except in the title, it is referred to by its former name.

Chapter 1, the first of 31 chapters and 8 appendices, claims a wide audience for the book, from those who want to study the history and development of the Internet to those who want a technical manual for setting up a Hyper-G Web server. Yet despite this claim, the discussion of Internet issues is more technical than philosophical. And you have to read quite far into the chapter before you find out that Hyper-G is a whole suite of software for authoring and exploring Internet-based information which offers much more than we are used to on the Web.

Chapter 2 gives a history of the Internet, explaining all the terms and acronyms. There are sections covering FTP, Archie, WAIS, Gopher and the Web. Those completely new to these concepts may suffer from information overload as new terminology is thrown at them thick and fast. Every time a new term appears for the first time, it is printed in bold face, and there are often ten or more of these in a single page. Chapters 3 and 4 give a calmer and more readable introduction to the history and possibilities of hypermedia systems. The history lesson continues in Chapters 6 and 7 which give a detailed description of the history and workings of Gopher and the Web. The basics of HTML are explained and there are short descriptions of the most popular HTML editors, browsers and server software. References to Web addresses (URLs) are frequently given.

In between, in Chapter 5, we learn how Hyper-G fits in. A Hyper-G Web server is able to generate HTML Web pages 'on the fly' when receiving requests from an ordinary Web browser. The server maintains a database of information and links which allows the site to be dynamically reconfigured, while maintaining the integrity of the links. There are also a number of native Hyper-G clients for Unix, Windows and Macintosh platforms. These can function as ordinary Web browsers but, when connected to a Hyper-G server, can make full use of the advanced features of the system. They can display HTML, postscript documents, video clips and three dimensional models, all with embedded links. They can also build two- and three-dimensional maps of the information space on the server, allowing you to find the information you want more easily. And you can communicate with others using the same server.

Chapter 8 discusses, in some detail, the limitations of a Web site based simply on a collection of linked HTML files, and Chapters 9 to 13 describe the Hyper-G solution to these problems. A Hyper-G site is dynamic structure of multimedia documents with facilities for access control, version control and consistency of links and of cached information. All aspects of a Hyper-G server seem to have been covered; multilingual documents, connections to databases through CGI and SQL gateways, sophisticated methods for representing and searching information spaces, and production of stand-alone versions of sites for distribution on CD-ROM. The following seven chapters make up a technical manual for all the software so far described and its use with existing Web and Gopher severs. Chapter 22 describes the general principles of structuring information with Hyper-G, and is followed by five chapters which explain how to achieve this with the tools provided on the CD-ROM. Further technical detail is given in the appendices.

Chapters 28 to 30 describe a variety of applications which make use of the features of the Hyper-G system. Examples are given of successful, virtual versions of conferences, exhibitions and committees. Electronic publishing is also described in some detail, covering issues such as electronic refereeing and the relative advantages of various document file formats. Chapter 30 describes and compares various systems for secure Internet communications and electronic funds transfer.

Chapter 31 lists anticipated developments in the Hyper-G system which will increase the number of document formats supported and its use for managing electronic libraries. The main text ends with a final sales pitch for the advantages of moving your Web site to a Hyper-G server.

The CD ROM contains software (also available from ftp://ftp.iicm.tu-graz.ac.at/Hyperwave) to implement a Unix-based Hyper-G server (although you are not allowed to use it for commercial purposes) and Hyper-G clients for Unix and Windows. There are also some good examples of Hyper-G multimedia databases. The software is quite complex, and the user-interface is not intuitive. I was not able to get

the Amadeus (Windows) client to connect to an external Hyper-G server, and although I did get it to connect to Web servers, I could not properly display the Web pages I received. I suspect that I shall have to delve much more deeply into the pages of the manual to find out how to configure the system properly.

Hyperwave/Hyper-G is a well-thought out protocol which releases much more of the potential of the Internet than the simplistic HTML which has made the Internet so popular. It is likely to be one of a number of competing systems for enhancing the capabilities of the Internet, but I fear that it will be too complex and too different from HTML-based systems to win the battle.

Richard Storer, University of Paisley

***Managing Multimedia* by Elaine England and Andy Finney, Reading MA and Harlow: Addison Wesley, 1996. ISBN: 0–201–87739–2. 346 pages, paperback, plus CD-ROM. £28.27.**

This book begins with the claim that it 'is useful for anyone studying or practising multimedia ' and, perhaps surprisingly, it is. Experienced multimedia project managers may find little that they have not already learned (the hard way), but they will probably find it both gratifying and useful to have the detailed concerns of the life-cycle of a complex multimedia project so lucidly articulated. Less experienced project managers, multimedia developers and students of multimedia should find this book and its accompanying CD-ROM a mine of useful information.

The book is divided into nineteen chapters covering the entire cycle of a project from its inception to the necessary and often forgotten process of archiving all the records of the project for future use. The first two chapters set out the issues surrounding multimedia project management, and the remaining seventeen consider in some detail what is required satisfactorily to complete a multimedia project. Thus the book begins with a discussion of how to 'scope a project' and turn it into a clearly articulated proposal that can in turn be converted into a contract. Subsequent chapters deal with issues like how to choose the appropriate platform and how to select and manage a team. Others focus on the issues surrounding the production of the various media assets. These chapters give a brief introduction to the technical details of such things as audio-video production, as well as insights into how to achieve quality results. Additionally, there are chapters that deal with a range of pertinent legal issues including the thorny problem of intellectual property rights.

As the title, *Managing Multimedia*, suggests, the book adopts the perspective of the project manager in order to chart a path through the complexities of multimedia production and seeks to identify his or her responsibilities at each stage of the process. Indeed, each chapter begins with a brief description of the project manager's responsibilities vis-a-vis that chapter's principal concerns, be they contract negotiations or ensuring the timely production of quality audio-visual assets. Each chapter also contains a brief section entitled 'Theory into practice' which offers some practical suggestions about how to relate that chapter's discussion to one's own work. There is also a summary for each chapter and, as appropriate, recommendations for further reading.

The accompanying CD contains supplementary material for many of the chapters. By comparison with the book, however, the CD is rather disappointing. It contains the summaries of each chapter, and this provides a helpful and easy way to navigate around the text. But the full text is not there, although there would appear to have been room to have included it. Still more puzzlingly, even the recommended reading is not there, nor is it ever gathered together into a complete bibliography. There are also one or two other less important oddities about the CD. It was almost impossible to get it out of the sleeve containing it, and it was impossible to return it there. And interestingly, although the CD is programmed in HTML to run under Windows Explorer, and users are cautioned that it may not work as well with other browsers, I actually found that it performed better under Netscape than under Explorer. However, this may have been a function of the different graphics capabilities of the test machines.

Despite these reservations, it should be stressed that most of what is there is very useful. There is a glossary of terms (also included in print in the book), a selection of multimedia assets that give examples of the impact on quality of various production techniques, and demonstration versions of several multimedia authoring and editing tools. But perhaps the most useful things on the CD, or indeed in the book, are the range

of sample documents and tables that can help with the planning, organization and management of a project. These include a questionnaire to help scope a project, and sample rights agreements. Unfortunately, some of the useful documents in the book, such as the table of multimedia costs, inexplicably do not appear on the CD.

One other aspect of the book that may initially concern readers of *ALT-J* is the book's self-confessedly commercial slant. It very successfully seeks to 'cover all the phases for developing a team-based, client driven, commercial project which uses the equivalent of some original video footage, a range of audio assets, and commercially sourced and in-house produced graphics'. Some academic readers may feel this slant is inappropriate for them, but this would be a mistake. As the authors rightly point out, 'The major differences between non-commercial and commercial projects are the amount and type of rights clearances that are needed, as well as the smaller production scale where fewer staff are used in audio, video and graphics production.' If you are working on these types of project you may not have as many administrative and legal aspects to cover, but many will be the same, just needed on a smaller scale.

One can say that despite its typically high price (£28.27), *Managing Multimedia* can be recommended as a useful core textbook for the burgeoning number of undergraduate and postgraduate courses in multimedia. It is also a valuable reference book for those of us, whether in the commercial or academic worlds, charged with managing the production of multimedia materials. Certainly, it is my intention to keep this book very close to hand.

Bruce Douglas Ingraham, University of Teesside

***Digital Creativity (Proceedings of the First Conference on Computers in Art and Design Education, CADE 95)*, edited by Suzette Worden, Brighton: University of Brighton, 1995. ISBN: 1-871-966-23X. CD-ROM. £15.00.**

This is a CD-ROM, and an interesting way of presenting the proceedings of a conference (although unfortunately it can only be used on a Macintosh computer). The use of a CD-ROM has allowed the editor not only to provide all the papers and keynote speeches, as you would expect in a book of conference proceedings, but also a method by which some of the exhibitors at the conference can show their exhibits to a wider audience. The editor has also included a set of reflections on the conference from people attending.

The conference proceedings are in an archived section, and the prospect of printing off a whole book is not one I expected to do when offering to review this CD-ROM, so I have not looked at the papers in detail (a printed book of the conference proceedings is available, but it was not sent for review). But the archive does provide the posters, workshop papers, postgraduate papers, demonstration papers, and evening session papers, none of which is available in the book, and this represents a wealth of material not normally available outside a conference. The editor provides the papers in Word or plain text form, and there is a contents list which is very useful. Also in the archive section are a number of pictures by various artists (in JPEG format).

The suggested formal approach to using this CD-ROM is to start with the attendees' 'Reflections'. Unfortunately, however, the navigation tools I would have expected in this program leave much to be desired. And 'Reflections' has some very noisy distracting music on it: on my Mac, the CD-ROM program overrode the computer's volume control. Furthermore, the start of 'Reflections' is a good example of how not to communicate essential information to a user. The first scene loops continuously until you click the mouse, though nothing tells you to do that. And the navigation information on the next screen is very difficult to read. Indeed, the first time through I did not realize it was anything more than a jumble of different-sized letters. Because the music was so loud, I switched off my computer. The second time, having taken precautions to deaden the noise, it became clear that the letters were giving out some information. One or two clear, always visible buttons, are needed. Essential navigation buttons have to be discovered at the bottom centre of the screen by passing the mouse cursor over them. Having found that the index also had the mixture of letters, I seriously wondered at this point if I was the audience this CD-ROM was meant for. Clear communication of basic navigation is of prime importance when designing something like this, and it is sadly missing here.

The menu allows you to hear different people's

reflections on the conference under the themes Digital Creativity, Art and Design, Work Process and the Future. Clicking on the words in the index takes you to another area showing quotations on this subject from different people. Clicking on the quotation brings up the picture of the person and his or her name, and clicking on the picture starts them talking. Though I am sure that this was not the intention, I found that when you click on a quotation to get a picture, you have to click again to get them to speak, which allowed me the luxury of pausing in silence. It is quite interesting to hear different people's short reflections on the conference, though it is all rather bitty.

The last section is 'Creations', an area which shows various people's work based on using a computer. There is a lack of information about each creation, and you just have to try them out. What is more, it soon becomes clear that some of the work was at an early stage before publication: it would perhaps have been better not to include it, for what is acceptable at a conference is not necessarily acceptable away from it. One interesting piece, however, is 'Word beyond speech', a mix of sound in the form of speech and music, and words on the screen moving and changing, which as a piece of dynamic art I found intriguing. In this section you can also access the movie clips used in 'Reflections'.

Certainly, if you would like to have been at the conference and could not get there, this CD-ROM will give you a better idea of what went on than would be possible in a printed book. But I came away from using it very concerned that the problems of basic communication requirements outlined above did not seem to have been addressed in a product describing a conference on Art and Design education.

Sheila Stone, Open University

***Students as Tutors and Mentors*, edited by Sinclair Goodlad, London: Kogan Page, 1996. ISBN: 0–7494–1792–7. Paperback. £14.95.**

Developments in communications and information technology have allowed students to become responsible for their own learning. Indeed, nowadays there is often a lack of distinction between the teacher as student and the student as teacher. While technology allows roles to develop and change, we need a robust warrant for such changes. The involvement of students as mentors in learning opportunities seems an appropriate context.

Recent technology-led developments have facilitated this partnership though Computer Supported Collaborative Learning. Unfortunately, this book does not help. It came about as a result of a BP-supported conference, Students as Tutors and Mentors, held in 1995. The involvement of BP arose with their interest in lifelong learning and their support for the International Mentoring and Tutoring Project at Imperial College back in 1990. The sixteen chapters of the book reflect many and varied perspectives of different authors who attended the conference and who describe and evaluate – in some instances – case studies and development programmes in mentoring. Mentoring, in my mind, is the facilitation of learning. However, this book takes an organizational view of mentoring.

Sinclair Goodlad, from Imperial College, sets the scene, and the final chapter is by Sir Christopher Ball. Ball (who authored the seminal RSA report 'Start Right' in 1994) lays out the challenge of lifelong learning and establishes the importance of interdependence of the teacher and the taught. He makes much of what he calls 'applied intelligence', and supports the Big Idea that the world is ready to grasp the importance of learning as a commodity in the First World's post-industrial society. Much of the book is about changing roles, and only by implication about learning. I would like to have seen the influence of information and communications technology highlighted.

While the book is important in the field of lifelong learning, it will be somewhat impenetrable for those with a technology orientation. It does demonstrate the breadth of the educational field, but learning technologists will, I fear, have difficulty with the jargon of lifelong learning – 'tis a pity, but 'tis true.

Ray McAleese, Heriot-Watt University

***Learning Contracts: A Practical Guide* by Geoff Anderson, David Boud and Jane Sampson, London: Kogan Page, 1996. ISBN: 0–7494–1847–8. 150 pages, paperback. £18.99.**

This is a very useful book. David Boud first became an author to check out when I was catching up with most other people on problem-based learning approaches to curriculum

development (see, for example, Boud and Feletti in *The Challenge of Problem-Based Learning*, London: Kogan Page, 1991 and 1994). Learning contracts, as a concept, made sense to me but I needed some rationale and description for this that HE teachers could relate to whatever their discipline, and generate their own ideas rather than revising mine (which activity belongs more usefully in a later brainstorming stage). What is a learning contract? Answering this question forms the opening paragraph of Chapter 1 of this book. The authors say it is 'a written agreement negotiated between a learner and a teacher, lecturer or staff adviser, that a particular activity will be undertaken in order to achieve a specific learning goal or goals'. This implies that it will vary widely across teaching and learning situations while retaining an essential defining feature as 'a document used to assist the planning of a learning project'.

The book is subtitled *A Practical Guide* – appropriately. Without leaning heavily on theory (though with appropriate references), its chapters explain the idea and its rationale, provide templates, describe cases, then leave it to the reader to test the value of the practice. It is a good strategy for more than simply agreeing learning objectives and assessment procedures. Both are called into question and tested against each other at all stages in the contractual interaction – once an agreement is signed, the teacher and the students should at least have a shared model of what any given learning programme is for and how it should be progressed through.

That is the ideal, of course. Just putting together a piece of paper which provides a few bullet points from a QA document draft or, far worse, an unreasonable target that a student finds so hard to interpret that he/she simply complies and hopes that understanding will follow, are possible outcomes from a universal acceptance of learning contracts as an integral part of any HE course. Familiarity breeds content that is often devoid of real meaning and, to work properly, the thing has to be for real, on both sides, and manageable.

Moreover, there will (hopefully) be situations where the learning intentions, resourcing and rewards evolve as a course develops. To constrain development by too strong a delineation of goal and practice would be counter-productive. This book has common-sense advice on writing learning objectives and identifying appropriate learning resources, with strategies for their use. There is a section on the needs of both learners and teachers and a final, important chapter points to the limits of learning contracts.

This is not a long book, and rather than extend this review any further, I just recommend buying it, reading it and lending it to your students so they can work out the point for themselves. One problem: although it sets the stage and provides some examples, it will not write your contract for you. That will actually be the hard part, and so it should be.

Erica McAteer, University of Glasgow

***Developing CGI Applications with Perl*, by John Deep and Peter Holfelder, New York: John Wiley & Sons, 1996. ISBN: 0–471–14158–5. 299 pages, paperback. £22.50.**

The World Wide Web is now being used quite extensively for marketing, tele-shopping, online ordering, making reservations, survey analysis using electronic questionnaires and, of course, online student testing in order to assess knowledge uptake and skill acquisition. Many of these kinds of application require levels of interactivity over and above those which can be achieved using simple hypertext markup language (HTML). Two important ways of achieving this interactivity are through the use of Java applets and/or the Common Gateway Interface (CGI). This book deals with the latter approach.

The material in the book is arranged into seventeen chapters that together cover most of the important material needed to write CGI applications using HTML and the Perl programming language. Although most of the chapters have been written by Deep and Holfelder themselves, some of the others have been produced by a team of contributing authors.

The opening chapters provide a brief overview of the Web, a description of its rapid development since its inception in 1990, and a summary of its important features (such as browsers, URLs and HTML). The special 'forms' features of HTML are then described in Chapter 3, while Chapter 4 explains the CGI and how it can be used to handle data generated from within Web forms applications. This leads into an introductory chapter on Perl and a very informative chapter that describes and discusses

the HyperText Transfer Protocol (HTTP). Having discussed the basics in Chapters 1 to 6, subsequent chapters go on to explore CGI applications in more detail. Many of the scripts described are available on the Web at http://worldwidemart.com/scripts/.

The first in-depth application looks at the FormMail script for decoding and parsing HTML form data (which it echoes back as email to the person who entered it). The next application considers how to create a Free for All Link Page script which allows any user to add URL linkages and descriptive material on the fly. Subsequent chapters describe the Perl CGI scripts and HTML code for the implementation of various types of application: a countdown timer for future dates, the display of randomly selected images, a guest book, the creation of dynamic documents, and many other useful facilities. Of the chapters that make up the applications section of the book, Chapter 14 is by far the longest. It deals with the development of a Web-based project information management system (called PIMS) for large, multi-site engineering projects. Some of the other interesting topics covered include an Oracle gateway and the creation of dynamic documents.

This book provides a useful application-driven approach to understanding something of Perl and the types of processing that it can be used for (based on the analysis of form data and the dynamic creation of Web pages). Although it does not deal directly with any educational applications of CGI and Perl (such as online student testing with real-time feedback), anyone wanting to develop materials of this sort would undoubtedly find this book a very useful source of technical help.

Philip Barker, University of Teesside

Resource-based Learning **edited by Sally Brown and Brenda Smith, London: Kogan Page in association with SEDA (the Staff and Educational Development Association), 1996. ISBN: 0-494-1932-6. 154 pages, paperback. £18.99.**

This is a fifteen-chapter edited collection of ideas about resource-based learning drawn from experiences of its use. Some of the contributors are well-known in the field.

The editors open by discussing what resource-based learning is. They point out that the phrase can be used to describe a wide range of situations, but essentially the book is concerned with how non-human resources can help support significant amounts of independent learning. This does not preclude the involvement of human tutors, but does involve the use of resource materials such as printed study guides and workbooks, multimedia packages, computer-based learning material, and material delivered over the World Wide Web.

In a sense, resource-based learning is nothing new. What is new is that some now regard it as a means of coping with the increased demands upon the UK higher-education system. However, most contributors indicate that resource-based learning is not a cheap option. Effective materials are costly to develop, have a limited shelf-life, and factors such as students' study skills, management of students' activities, staff induction and the provision of human tutorial support can all be critical to success or failure.

In Chapter 2, Graham Gibbs takes up the issue of success and failure with a mythical account of one lecturer's attempt to introduce resource-based learning into a course, impeded at every stage by inflexibility within the institution, management, colleagues and even the students themselves. There is not enough money for printing; essential formative progress tests within the materials have to be made voluntary because the institution allows only one unit of assessment per course, and so the students ignore them; the Department is fined for not using the teaching rooms allocated; and so on, layer upon layer. The punch line is that this is not parody but a composite of factors actually observed during an HEFC-funded study. This leads on to a discussion of how such problems can be avoided through appropriate strategies for implementing and supporting resource-based learning. Most have institution-wide implications and require commitment at many levels. An additional point is that we cannot cost resource-based learning by the crude counting of teaching hours. All kinds of considerations such as accommodation and assessment costs, drop-out rates and library use need to be taken into the equation.

Many of the following chapters consider resource-based learning from the perspective of different stakeholders. Phil Race addresses the development of students' study skills so that they can make effective use of the ever-widening range of learning materials. Chris Rust and

James Wisdom discuss the skills staff need to develop resources, from planning to the incorporation of learning activities into the materials. Brown and Smith (again) provide a list of ideas for staff development in the use of resource-based learning. Andrew Charlett describes how a distance-learning course in Building Studies was designed and run, and Charley Hardwick considers the implications of resource-based learning for libraries and information services. Two chapters describe the setting up of open learning resource centres, one of these in industry.

Cultural issues are discussed in several chapters. Both Leslie Mapp and Nick Slope discuss some of the difficulties that could arise if resource-based learning leads to a move away from traditional campus-based education. Mary Thorpe explores a number of issues associated with the increased use of innovative technologies, and how their evaluation may cause us 'to review accepted truths and cherished viewpoints'.

Bernard Lisewski and Chris Settle discuss the use of multimedia CD-ROM to replace twenty hours of lectures in a Weed Biology course. They cover issues such as the removal of the student time-management structure that lectures provide, benefits perceived by students, the danger that students may regard a resource as the only source to be used, and the relative strengths of CD-ROM and the World Wide Web. This chapter is not a description of what was done, but a well-informed and well-considered discussion of the integration of learning technology and its evaluation.

As with many collections of this kind, contributions are varied in both viewpoint and quality. Some tend in places towards over-generalization, others are parochial, one is basically a set of checklists. I particularly liked a couple of chapters, but different readers will probably find different things of interest. In sum, the book discusses a variety of angles and experiences of resource-based learning and could be helpful background reading for course developers or individuals considering incorporating it into their teaching.

Robert Ward, University of Huddersfield